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Earth Sciences Division
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Swiss citizen, married, born in Romont (Canton Fribourg, Switzerland).

MAJOR RESEARCH INTERESTS

- Subsurface processes (hydrological, physical and biogeochemical)
- Relations between geophysical, hydrological and biological parameters
- Predictions of groundwater flow and transport processes
- Development of adequate strategies to acquire, process and use geophysical data
- Stochastic and numerical methods for integration of multiple sources of data
- GPR and electrical methods and properties
- Borehole geophysics

EDUCATION

10.2005-6.2009 **PhD, Geophysics,** Institute of Geophysics, University of Lausanne, Switzerland
9.1999-4.2004 **MSc, Geophysics,** Department of Earth Sciences, ETH Zurich, Switzerland

EXPERIENCES

5.2011-présent **Post-Doctoral Researcher**, Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California (USA)
1.2010-4.2011 **Post-Doctoral Researcher**, *(with fellowship from the Swiss National Science Foundation)*, Center for Geophysical Investigation of the Shallow Subsurface (CGISS), Boise State University, Idaho (USA)
10.2005-6.2009 **Graduate Student Researcher**, Institute of Geophysics, University of Lausanne
1.2005-8.2005 **Civil Service**, Institute of Geophysics, University of Lausanne
5.2004-12.2004 **Civil Service**, Stiftung Umwelteinsatz
2003-2004 **Student Researcher**, Institute of Geophysics, ETH Zurich

RECOGNITIONS

2010 Award (Prix de Faculté) for excellence of the Ph.D thesis, University of Lausanne
2009 Postdoctoral fellowship awarded by the Swiss National Science Foundation (SNF)
2007 Outstanding Student Paper Award in Hydrology, American Geophysical Union

PUBLICATIONS

Submitted Publications:

Dafflon, B., and Barrash, W., Benefits of using GPR velocity tomograms in complement to neutron porosity log data for 3-D stochastic estimation of porosity distribution at the Boise Hydrogeophysical Research Site, submitted to *Water Resources Research*.

Dafflon, B., Barrash, W., Cardiff, M., and Johnson, T.C., Hydrological parameter estimations from a conservative tracer test with variable-density effects at the Boise Hydrogeophysical Research Site, submitted to *Water Resources Research*.

Publications with International Peer-Review:

Dafflon, B., Irving, J., and Barrash, W., Inversion of multiple intersecting high-resolution crosshole GPR profiles for hydrological characterization at the Boise Hydrogeophysical Research Site, *Journal of Applied Geophysics*, 73, 305-314, 2011.

Dafflon, B., Irving, J., and Holliger, K., Calibration of high-resolution geophysical data with tracer test measurements to improve hydrological predictions, *Advances in Water Resources*, 33(1), 55-68, 2010.

Dafflon, B., Irving, J., and Holliger, K., Use of high-resolution geophysical data to characterize heterogeneous aquifers: influence of data integration method on hydrological predictions, *Water Resources Research*, 45, W09407, 2009.

Dafflon, B., Irving, J., and Holliger, K., Quantitative integration of high-resolution hydrogeophysical data: a novel approach to Monte-Carlo-type conditional stochastic simulations and implications for hydrological predictions, *Journal of Earth Science*, 20(3), 580-591, 2009.

Dafflon, B., Irving, J., and Holliger, K., Simulated-annealing-based conditional simulation for the local-scale characterization of heterogeneous aquifers, *Journal of Applied Geophysics*, 68(1), 60-70, 2009.

Belina, F. A., **Dafflon, B.**, Tronicke, J., Holliger, K., Enhancing the vertical resolution of surface georadar data, *Journal of Applied Geophysics*, 68(1), 26-35, 2009.

Holliger, K., Tronicke, J., Paasche, H., and **Dafflon, B.**, Quantitative interpretation of hydrogeophysical and hydrological data: geostatistical approaches, in: *Overexploitation and Contamination of Shared Groundwater Resources*, ed. Darnault, C., Springer, New York, 2008.

Dafflon, B., Tronicke, J., and Holliger, K., Inferring the lateral subsurface correlation structure from georadar data: methodological background and experimental evidence, in: *Geostatistics for Environmental Applications*, eds. Renard, P., Demougeot-Renard, H., and Froidevaux, R., Springer, New York, 2005.

Conference Presentations:

Dafflon, B., Barrash. W., and Cardiff, M.A., Benefit of using geophysical information to estimate the distribution of hydrological properties for prediction of solute transport: Evaluation based on a field tracer test experiment and crosshole GPR data. *Eos Trans. AGU*, 90(51), Fall Meet. Suppl., Abstract H13D-0997, San Francisco, CA, December 2010.

Cardiff, M.A.., Barrash, W., **Dafflon, B.**, Malama, B., Non-uniqueness in relationships between geophysical and hydrologic parameters: Existence, implications, and improving methods of data integration (*Invited*). *Eos Trans. AGU*, 90(51), Fall Meet. Suppl., Abstract H23L-01, San Francisco, CA, December 2010.

Barrash, W., Bradford, J H., Cardiff, M A., **Dafflon, B.**, Johnson, B A., Malama, B., Thoma, M J., Integrated Site Investigation Methods and Modeling: Recent Developments at the BHRS (*Invited*). *Eos Trans. AGU*, 90(51), Fall Meet. Suppl., Abstract H24E-04, San Francisco, CA, December 2010.

Dafflon, B., Barrash, W., and Irving, J., Inversion of multiple intersecting high-resolution crosshole GPR profiles for hydrological characterization. SEG Annual Meeting, Expanded Abstract, Denver, CO, October 2010. (Invited Talk)

Dafflon, B., Irving, J., and Holliger, K., Determination of porosity – hydraulic conductivity relationship using high-resolution geophysical data and tracer test measurements to improve hydrological predictions. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H51G-0917, San Francisco, CA, December 2008.

Dafflon, B., Irving, J., and Holliger, K., Use of high-resolution geophysical data to characterize the porosity distribution in heterogeneous aquifers: influence of geostatistical data integration method on hydrological predictions, International Conference on Geostatistics for Environmental Applications, Southampton, September 2008.

Dafflon, B., Irving, J., and Holliger, K., Use of high-resolution geophysical data to characterize the porosity distribution in heterogeneous aquifers: influence of inversion and data integration method on hydrological predictions. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H23A-1006, San Francisco, CA, December 2007. (Winner of AGU Outstanding Student Paper Award in Hydrology)

Dafflon, B., Holliger, K., and Tronicke, J., Hydrogeophysical data integration through conditional stochastic simulation: accounting for larger-scale deterministic information. SEG Hydrogeophysics Workshop, Vancouver, BC, August 2006.

Dafflon, B., Tronicke, J., and Holliger, K., Inferring the lateral subsurface correlation structure from georadar data: methodological background and experimental evidence. International Conference on Geostatistics for Environmental Applications, Neuchâtel, September 2004.